

What Is Claimed Is:

- 1 1. An isolated nucleic acid molecule encoding a
2 pancreatic T-type calcium channel.
- 1 2. The isolated nucleic acid molecule of claim 1
2 wherein said nucleic acid is deoxyribonucleic acid.
- 1 3. The isolated nucleic acid molecule of claim 2
2 wherein said deoxyribonucleic acid is cDNA.
- 1 4. The isolated nucleic acid molecule of claim 3
2 wherein said nucleic acid molecule has a nucleotide
3 sequence as shown in SEQ ID NO:1.
- 1 5. The isolated nucleic acid molecule of claim 1
2 wherein said nucleic acid molecule encodes an amino acid
3 sequence as shown in SEQ ID NO:2.
- 1 6. The isolated nucleic acid molecule of claim 1
2 wherein said nucleic acid is ribonucleic acid.
- 1 7. The isolated nucleic acid molecule of claim 6
2 wherein said ribonucleic acid is mRNA.
- 1 8. An antisense nucleic acid molecule complementary
2 to at least a portion of the mRNA of claim 7.
- 1 9. A cell comprising the antisense nucleic acid
2 molecule of claim 8.
- 1 10. An expression vector comprising the antisense
2 nucleic acid molecule of claim 8.

1 19. A method of decreasing expression of a
2 pancreatic T-type calcium channel in a host cell, said
3 method comprising introducing the ribozyme of claim 14
4 into the cell, wherein expression of said ribozyme in

1 29. An isolated nucleic acid molecule encoding a
2 pancreatic T-type calcium channel, said nucleic acid
3 molecule encoding a first amino acid sequence having at
4 least 90% amino acid identity to a second amino acid
5 sequence, said second amino acid sequence as shown in SEQ
6 ID NO:2.

1 30. A DNA oligomer capable of hybridizing to the
2 nucleic acid molecule of claim 1.

1 31. A method of detecting presence of a pancreatic
2 T-type calcium channel in a sample, said method
3 comprising:

4 contacting a sample with the DNA oligomer of claim
5 30, wherein said DNA oligomer hybridizes to any of said
6 pancreatic T-type calcium channel present in said sample,
7 forming a complex therewith; and

8 detecting said complex, thereby detecting presence
9 of a pancreatic T-type calcium channel in said sample.

1 32. The method of claim 31 wherein said DNA
2 oligomer is labeled with a detectable marker.

1 33. An isolated pancreatic T-type calcium channel
2 protein.

1 34. The pancreatic T-type calcium channel protein
2 of claim 33 wherein said pancreatic T-type calcium
3 channel protein is encoded by a nucleotide sequence as
4 shown in SEQ ID NO:1.

1 35. The pancreatic T-type calcium channel protein
2 of claim 33 wherein said pancreatic T-type calcium

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1 49. The method of claim 43 wherein the pancreatic
2 beta cells are present in a subject having type II
3 diabetes.

1 57. A method of modifying the action potential of L
2 type calcium channels in cells, the method comprising
3 modifying levels of functional T type calcium channels in
4 the cells.

1 58. A method of modifying pancreatic beta cell
2 death, the method comprising modifying levels of
3 functional T type calcium channels in the pancreatic beta
4 cells.

1 59. A method of modifying pancreatic beta cell
2 proliferation, the method comprising modifying levels of
3 functional T type calcium channels in the pancreatic beta
4 cells.

1 60. A method of modifying calcium influx through L
2 type calcium channels in cells, the method comprising
3 modifying levels of functional T type calcium channels in
4 the cells.

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